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NOTES ON SOME SPECIES OF THE GENUS ANOMALA WITH DESCRIPTIONS OF NEW SPECIES.

BY CHARLES SCHAEFFER,

BROOKLYN, N. Y.

I have a short revision of this genus nearly ready for publication, but awaiting some Mexican material for comparison and confirmation of my identifications. The following notes are published in advance.

Anomala antennata, new species.

Larger than *parvula* Burm., which it otherwise resembles in form, thorax with similar two dark spots at apex, but the elytral intervals are of equal size, convex. Antennal club slightly longer than the rest of the joints, pale testaceous. Head black coarsely rugosely punctured in front, more fine and sparse on the occiput, clypeal margin widely reflexed, broadly arcuate in front; eyes moderately prominent. Thorax more than twice as wide as long, sides arcuate, hind angles rounded, front angles obtuse; base finely margined; disk convex, surface rather sparsely and shallowly, punctate; color testaceous with two slightly elongate dark apical spots each oblique behind. Elytra slightly broader at base than the thorax, sides nearly parallel, disk convex, surface with nine striæ, the latter not punctate, intervals nearly equal, convex, except the subsutural which is broader and somewhat coarsely punctate at basal half, punctures finer and more distinct behind middle, the other intervals scarcely punctate and uneven; color testaceous with suture and side margin slightly darker. Pygidium moderately coarsely punctate, denser at sides than at middle. Body beneath and legs testaceous; metasternum clothed not densely with long hairs; abdomen shining, scarcely punctate and with only a few hairs. Front tibiae bidentate, the larger front claw finely cleft, the upper portion very short and hardly visible, intermediate claws entire, not cleft. Length (head porrected), 10 mm.

New Mexico, one male in collection Dietz.

The formation of the male claws brings this species near *parvula* which it otherwise resembles in color, thoracic markings and form, but is larger, has a deeply excavated clypeus and the elytral intervals are different.

Anomala flavilla Bates.

Biol. Cent. Am., vol. II, pt. 2, p. 226, tab. XII, fig. 18.

Several specimens of this Mexican species, collected in Ehrenberg, Arizona were received from Mr. George Franck.

It is slightly more elongate than *flavipennis* Burm., the color is testaceous, with two apical thoracic spots and suture black; the alternate elytral intervals broader, not convex, the subsutural coarsely and irregularly punctate, the others more sparse and finer; the two apical thoracic dark spots extend from apex to middle, broader at the latter point and narrowing to apex; the front tibiæ are tridentate and the outer claws of the front and middle tibiæ are cleft. Dr. Ohaus records also dark-colored specimens from Mexico, but all those from Arizona are pale.

Anomala centralis Leconte.

New species N. Am. Col., 1863, p. 78.

Through the kindness of Mr. G. Beyer I received some typical specimens of this species, collected by him in Lower California. The Arizona specimens referred to this species by Dr. Horn and standing in most collections as that species, are a different thing and in my opinion only an extreme variation of *inconstans* Burm. (*lurida* of our list); *centralis* is on the average smaller and slightly more parallel, with the hind tibiæ relatively shorter and broader. Of *inconstans* I have taken this year quite a number of specimens, but more of the pale than of the darker form.

Anomala innuba Fabricius.

Mant. Ins. I, p. 22.

This is the species called in all of our collections *minuta* Fab. The correction of this error is due to Dr. Fr. Ohaus, who has seen the type. The true *minuta* will be referred to later.

Anomala polychalca Bates.

Biol. Cent. Am., vol. II, pt. 2, p. 236.

I refer a few specimens taken at light near Brownsville, Texas, to this species or rather variety of *cincta* Say.

Above, below and legs more or less metallic green, thorax in one specimen with a slight coppery tinge, striæ of elytra impressed and distinctly punctate, intervals nearly equal, convex, finely punctate; pygidium coarsely and in some parts confluent punctate; clypeus rounded and moderately reflexed; mesosternum broader between the coxæ than in *binotata* Gyll., which it resembles in form, but is slightly larger. One specimen shows on the elytra a few dark testaceous streaks.

***Anomala luteipennis* Leconte.**

Proc. Acad. Nat. Sc. Phil., vol. VII, p. 80.

This name is wrongly applied by Dr. Horn and others to the pale specimens of *binotata* Gyll. from Texas and Arizona. Dr. Leconte describes the pygidium as being "parcius sat grosse punctatus," which is in *binotata* invariably finely rugose. Some of the pale forms of an *Anomala* which I took near Brownsville, Texas, agree in every respect with Dr. Leconte's description, also nearly with the locality; these are connected by intermediate specimens from Virginia and Texas with *flavipennis* Burm.

***Anomala peninsularis*, new species.**

Form of *binotata* Gyll., shining, testaceous, head, thorax, suture, margin and sides at base of elytra, as also the legs, reddish. Head coarsely and densely punctate, clypeus transverse, apex subtruncate, angles rounded, margin moderately reflexed, clypeal suture distinct. Thorax shining, sparsely punctate, convex, sides slightly arcuate, hind angles rounded, front angles not prominent. Scutellum coarsely punctate. Elytra widening towards apex, intervals clearly defined and alternately wider, the wider intervals flat, irregularly punctate, the costæ (narrow intervals) slightly convex and almost impunctate. Metasternum clothed with moderate, long hairs, abdomen shining and sparsely punctate; pygidium transverse, subconfluent punctate, the punctures not deeply impressed. Front tibiæ bidentate, the apical tooth elongate and slightly curved, the upper tooth prominent but obtuse, the larger tarsal claw cleft at tip, the upper portion finer and shorter than the lower in the male, equal in the female; outer claw of middle tarsi cleft, the upper portion nearly as long as the lower, but narrower. Length, 11 mm.; width 7 mm., male. Length, 13 mm., width 7 mm., female.

Santa Rosa, Lower California, male and female, collected by Mr. Gustav Beyer, to whom I am greatly indebted for this as well as other interesting species.

***Anomala ludoviciana*, new species.**

Form of *binotata* Gyll. but smaller, thorax and elytra more coarsely punctured, head, thorax and legs dark rufous, the thorax with slight metallic luster and elytra with or without darker spots. Head coarsely punctate in front, more finer and

sparser on the occiput, clypeus subtruncate in front, angles rounded, margin moderately reflexed, clypeal suture distinct. Thorax transverse, narrowing to the front from a little before middle, nearly straight behind, basal angles rounded, front angles prominent, surface relatively coarsely punctate, but not densely. Scutellum coarsely punctate. Elytra slightly broadening towards apex, punctate striate, the punctures dark and here and there confluent, intervals flat, alternately wider, the subsutural coarsely and irregularly punctate, the others with an irregular row of punctures, the costæ (smaller intervals) slightly convex and not punctate, the disk more or less transversely rugose. Pygidium finely rugose as in *binotata*. Metasternum sparsely clothed with not very long hairs; abdomen sparsely punctate with moderately coarse but not deeply impressed punctures. Front tibiæ bidentate, the larger claw cleft at tip, the upper portion shorter and much narrower than the lower; intermediate claw cleft with the upper portion finer than the lower, but nearly as long. Length 9.50 mm.; width 5.25 mm.

Vowell's Mill, Louisiana, Mr. Charles W. Leng, to whom I am indebted for the specimens.

This species is closely related to *binotata* Gyll. but differs from that by being smaller, the prothorax and elytra more coarsely punctate, and the upper portion of the cleft claw being much finer and shorter. With this species I place at present some specimens from Kansas received from Prof. Snow as *binotata* var., which have the head, thorax, scutellum and legs dark-green, but which otherwise agree with the Louisiana specimens. Similar variations are seen in *flavipennis* Burm.

***Anomala carinifrons* Bates.**

Biol. Cent. Am., vol. II, pt. 2, p. 249, tab. XIII, fig. 24.

This species is mentioned by Bates to occur in our fauna from a specimen collected by Morrison in Southern Arizona. I have two specimens from Arizona which answer the description, one of them was collected by my brother in Bisbee. It is larger and more robust than *cavifrons* Lec., the striæ are faintly but distinctly punctured, the head and thorax also distinctly punctured and the surface is shining, while it is semiopaque in *cavifrons* Lec.

***Anomala minuta* Burmeister.**

Handb., vol. IV, 1, p. 249, and IV, 2, p. 504.

In the remarks following the description of *semilivida* Lec., Dr. Horn* mentioned some darker specimens, which are the true *minuta* Burm. Dr. Ohaus' good description† of the type saved me from making a synonym, as I had these specimens already labelled with a

* Trans. Am. Ent. Soc., XI, p. 162.

† Stett. ent. Zeit., lxiii, p. 48.

manuscript name. In the three specimens before me, which are from Florida, the thorax is dark-brown on the disk with the side margins and apex more or less pale, the elytra dark testaceous, with suture and sides more or less brown; the front and middle tarsal claws are simple, the first interval is relatively coarsely and irregularly punctate and the clypeus is not as concave as in *semilivida* Lec.

Anomala tibialis, new species.

Larger, more robust and convex than *parvula* Burm., with more parallel elytra and hind tibiae very short and triangularly dilated at apex. Head piceous, front paler, clypeus dark testaceous, coarsely and closely punctate; clypeus transverse, broadly rounded in front and narrowly reflexed. Antennae moderate, club slightly shorter than the preceding five joints. Thorax more than twice as wide as long, sides narrowing to the front from before middle, nearly straight behind, hind angles rounded, front angles not prominent; disk convex, apical marginal bead nearly obsolete at middle, basal marginal bead distinct, surface testaceous with two oblique dark, elongate markings at apex on each side of median line, the markings irregular in outline and slightly curved outward, sparsely not coarsely punctate, the punctures at sides and towards base nearly obsolete. Elytra elongate, parallel, testaceous, suture and margin dark, surface sculpture and striae more or less obscured by transverse rugae, the striae at sides more distinct and coarsely punctate. Under side testaceous, shining, metasternum moderately densely clothed with long pale hairs, abdomen with moderate punctures, which are not closely placed. Front tibiae bidentate, apical tooth elongate and slightly curved, the upper tooth sharp and prominent, the larger claw finely cleft, the upper and lower part equal in size; the larger claw of the intermediate tarsi finely cleft, the two parts equal in size; hind tibiae very short and distinctly shorter than the femora and broadly dilated towards apex. Pygidium moderately punctate, punctures not deeply impressed. Length 10 mm., width 5 mm.

Texas, one female in collection Dietz.

By the unusually short and broadly dilated hind tibiae this species is easily distinguished from all our species. It is very closely allied to the Mexican *rhizotrogoides* Blanch., but seems to differ from that species by the more parallel form and the elytral sculpture.

**HORN'S SYSTEMATISCHER INDEX DER
CICINDELIDEN.**

BY VICTOR E. SHELFORD,

CHICAGO, ILL.

By far the great majority of systematic papers (monographs and systematic lists) are written with respect to unnatural geographical